CLAIMS

1. A device for detecting a demodulated signal received by a spread spectrum receiver and converted into digital samples the device comprising:

a matched filter for calculating the correlation between an incoming signal and at least one reference signal;

an oscillator for generating a sampling frequency;

a sampling circuit for re-sampling said demodulated digital sample signal at said sampling frequency, which is such that the timing of samples of a sample signal going from the sampling circuit to the matched filter corresponds to the timing of the reference signals of the matched filter; and

a multiplier in which the sample signal is multiplied by a carrier replica generated locally before the sampling circuit or thereafter, to remove the carrier from the sample signal.

2. A device as claimed in claim 1, wherein the sampling frequency generated by said oscillator is adjustable such that the timing of a sample signal going from the sampling circuit to the matched filter corresponds to the timing of samples of the reference signals of the matched filter.

3. A device as claimed in claim 1 or 2, wherein the device comprises one or more coherent integrators for integrating correlation samples generated as outputs by the matched filter over an integration period that is longer than the length in time of the matched filter.

4. A device as claimed in claim 3, wherein the outputs of the matched filter are complex correlation samples, and that the coherent integrator comprises an accumulator for summing up two or more correlation samples corresponding to the same phase difference of the incoming signal, the sum corresponding to a correlation result calculated with one phase difference and whose integration time is $N_{MF} \cdot L_C$ samples, wherein N_{MF} is the length of the matched filter in number of samples, and L_C is the number of correlation samples summed up by the accumulator.

5. A device as claimed in claim 1, wherein the device comprises a calculator for calculating the absolute values or estimates of the absolute values of the correlation samples given as outputs by the matched filter or the coherent integrator.

6. A device as claimed in claim 5, wherein the outputs of the matched filter or the coherent integrator are complex correlation samples, and

that said calculator calculates the absolute value or an estimate of the absolute value of a complex correlation sample.

7. A device as claimed in claim 5 or 6, wherein the device comprises one or more non-coherent integrators for integrating said absolute values or estimates of the absolute values of the correlation samples over an integration period that is longer than the length in time of the matched filter.

8. A device as claimed in claim 7, wherein the non-coherent integrator comprises an accumulator for summing up two or more absolute values or an estimates of the absolute values of a correlation sample corresponding to the same phase difference of the incoming signal, the sum corresponding to a correlation result calculated with one phase difference and whose integration time is $N_{MF} \cdot L_N$ samples, wherein N_{MF} is the length of the matched filter in number of samples, and L_N is the number of correlation samples summed up by the accumulator.

9. A device as claimed in any one of the claims 1 to 8, wherein the device comprises a comparator, which compares the output values of the matched filter, the coherent integrator, the absolute value calculator or the non-coherent integrator with a predetermined threshold value, and gives a reference result that indicates if the output value exceeds or not said threshold value.

10. A device as claimed in claim 9, wherein the device comprises a controller for gathering several comparison results corresponding to the same phase difference and reference signal, and which, in response to a preset portion of the gathered reference results indicating that the output value exceeds said threshold value, assumes that a signal is found.

11. A device as claimed in claim 1, wherein the device comprises a controller for adjusting said oscillator to generate a sampling frequency for searching for a correlation at different phase differences of a received signal.

12. A device as claimed in claim 1, wherein the device is multichannel and searches time-dividedly in parallel for two or more received signals.